Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

2. (Previously presented) A device of claim 51, wherein at least one of the main and branch channels communicates with a reservoir.

3. (Previously presented) A device of claim 51, wherein the substrate is comprised of silicon.

4. (Previously presented) A device of claim 51, wherein the substrate comprises a silicone elastomer.

5. (Previously presented) A device of claim 51 wherein the particles of biological material comprise cells.

6. (Previously presented) A device of claim 4 wherein the silicone elastomer substrate is made from an impression of an etched silicon wafer.

7. (Previously presented) A device of claim 51 wherein the flow control system is electro-osmotic.

8. (Previously presented) A device of claim 51 wherein the flow control system is electrophoretic.

9. (Previously presented) A device of claim 51 wherein the flow control system is dielectrophoretic.

10. (Previously presented) A device of claim 51 wherein the flow control system is pressure driven.

11. (Previously presented) A device of claim 51 wherein the flow control

system is microvalve.

12. (Previously presented) A device of claim 51 wherein the flow control system is optical trapping.

13. (Previously presented) A device of claim 51 wherein the flow control system is flow stoppage-based control.

14. (Previously presented) A device according to claim 51 wherein the flow control is provided by a voltage gradient between the branch channels and the junction.

15. (Original) A device according to claim 14 wherein the voltage gradient is generated by electrodes in the branch channels.

16. (Previously presented) A device of claim 51 wherein the flow control is by a pressure gradient between one or more channels and the junction.

17. (Original) A device of claim 16 wherein pressure driven flow control is provided by capillary action at one or more channels of the substrate.

18. (Previously presented) A device of claim 51 wherein the flow control comprises one or more valves.

19.- 20. (Cancelled)

21. (Previously presented) A device of claim 52 wherein the characteristic is optically detectable.

22. (Previously presented) A device of claim 52 wherein the characteristic is determined by a fluorescent reporter.

23. (Previously presented) A device of claim 52 wherein the characteristic is determined by a chemiluminescent reporter.

24. (Previously presented) A device of claim 52 wherein the characteristic is determined by a radioactive reporter.

25. (Previously presented) A device of claim 52 wherein the characteristic is determined by a spectroscopically detectable reporter.

26. (Previously presented) A device according to claim 52 wherein the predetermined characteristic is size.

27. (Previously presented) A device of claim 52 wherein the detection apparatus comprises a light scattering apparatus.

28. (Previously presented) A device of claim 52 wherein the detection apparatus comprises an apparatus for recognizing electromagnetic radiation.

29. (Original) A device of claim 28 wherein the detection apparatus further comprises a source of electromagnetic excitation.

30. (Original) A device of claim 29 wherein the excitation source is a light source and the recognizing apparatus is a charge coupled device.

31. (Previously presented) A device of claim 52 wherein the detection apparatus comprises at least one of photomultiplier tubes and photodiodes.

32. (Previously presented) A device of claim 52 wherein the detection apparatus is positioned to target biological materials within a predetermined detection region.

33. (Previously presented) A device of claim 51, wherein the width and height of a channel of the device is at least about two times as large as the diameter of the largest material to be sorted.

34. (Previously presented) A device of claim 51, wherein a channel is from about 20 μm to 200 μm wide and about 20 μm to 200 μm deep.

35. (Previously presented) A device of claim 51, wherein the biological material is a cell having a predetermined characteristic that is identified according to a reporter signal selected from a dye, fluorescent agent, chemiluminescent agent, chromophore, radio-isotope, and optically detectable protein.

36. (Previously presented) A device of claim 35, wherein the control of flow is selected from electro-osmotic, electrophoretic, dielectrophoretic, pressure driven, microvalve, laser trapping and flow stoppage-based control.

37. (Cancelled)

39. (Previously presented) A method of claim 54 wherein the width and height of each channel is at least about two times as large as the diameter of the largest cell in the sample of cells.

40. (Previously presented) A method of claim 54 wherein the predetermined characteristic is an optically detectable reporter in or on the cells.

41. (Previously presented) A method of claim 54 wherein the cells are interrogated by at least one device selected from the group of microscopes, diodes, light stimulating devices, lasers, light scattering apparatuses, electromagnetic excitation sources, electromagnetic radiation detector apparatuses, photomultiplier tubes, and processors.

42. (Previously presented) A method of claim 54 wherein the reporter is selected from a dye, fluorescent agent, chemiluminescent agent, chromophore, radio-isotope, and optically detectable protein.

43. (Currently amended) A method of claim 54 wherein the flow is controlled by electro-osmosis, electrophoresis, dielectrophoresis, pressure gradient, microvalve, optical trapping [and] or flow stoppage.

44. (Previously presented) A method of claim 43 wherein the flow control is

provided by a voltage gradient between the branch channels and the junction.

45. (Previously presented) A method of claim 44 wherein the voltage gradient is generated by electrodes in the branch channels.

46. (Previously presented) A method of claim 44 wherein the main channel comprises an electrode.

47. (Previously presented) A method of claim 43 wherein the flow control is by a pressure gradient between one or more channels and the junction.

48. (Previously presented) A method of claim 43 wherein the pressure gradient is provided by capillary action at one or more channels of the substrate.

49. (Previously presented) A method of claim 54 wherein the flow control comprises one or more valves.

50. (Cancelled)

51. (Currently amended) A device for processing a flow of biological material in a fluid, said device comprising a substrate having an analysis unit microfabricated thereon and comprising:

(a) a main channel having a sample inlet, a detection region downstream of the sample inlet, and a branch point discrimination region adjacent to and downstream of the detection region;

(b) at least two branch channels originating at the branch point discrimination region and in communication with the main channel; and

(c) a flow control system responsive to the detection apparatus, and adapted to direct ~~each particle~~ biological material into a selected branch channel and to reverse the direction of movement of biological material that has been directed into a selected branch channel.

52. (Previously presented) A device according to claim 51 wherein the flow

control system is responsive to a detection apparatus for evaluating the biological material according to at least one characteristic as the material passes through the detection region.

53. (Previously presented) A device according to claim 4 wherein the silicon elastomer comprises PolyDiMethylSiloxan (PDMS).

54. (Previously presented) A method for sorting cells according to a predetermined characteristic, which method comprises:

(a) flowing a sample of cells through the main channel of a device according to claim 51 so that on average one cell at a time is placed within the detection region;

(b) interrogating each cell for the predetermined characteristic as it passes through the detection region; and

(c) directing the flow of each cell into a selected branch channel according to the results of the interrogation.